

## ABSTRACT

The present invention provides the following designing method: in a laser diode module or a depolarized laser diode module which has one laser diode and one polarization maintaining fiber connected to the output side thereof, the length of the polarization maintaining fiber is a value obtained by calculation of equation 37 with use of a longitudinal mode spacing  $\Delta\lambda$  output light from the Fabry Perot (FP) laser diode, an oscillating center wavelength  $\lambda_0$  of the laser light, a beat length  $L_{Beat1}$  of the polarization maintaining fiber and an optical wavelength  $\lambda_{Beat}$  used in the measurement of the  $L_{Beat1}$ . (Equation 37)

$$L_{Pig} < \frac{\lambda_0^2}{\Delta\lambda} \times \frac{L_{Beat1}}{\lambda_{Beat1}}$$